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| 09/439,311 | 11/12/1999 | IANFONG H. LEE | 78.560 | 1500 |

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| EXAMINER | |
|---|---|
| PORTNER, VIRGINIA ALLEN | |
| ART UNIT | PAPER NUMBER |
| 1645 | |

DATE MAILED: 04/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

| Application No. | Applicant(s) |
|---|---|
| 09/439,311 | Lee et al |
| **Examiner** | **Art Unit** |
| Portner | 1645 |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on *Jan 21, 2003* .

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under ***Ex parte Quayle***, 1935 C.D. 11; 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) *1-3 and 8-24* is/are pending in the application.

4a) Of the above, claim(s) *2, 8-15, and 17-24* is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1, 3, and 16* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☒ Claims *1-3 and 8-24* are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

**DETAILED ACTION**

Claims 1-3, 8-24 are pending.

Claims 4-7 have been canceled.

Claims 17-24 were newly added.

Claims 1 and 3 have been amended.

Claims 2, 8-15 stand withdrawn from consideration.

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Election/Restriction***

2. Newly submitted claims 17-24 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

a.The previously examined claims 1, 3-6 were directed to compositions that:

i. encoded a portion of the flaA gene of Campylobacter of SEQ ID NO 1,

ii. and an expression system which recited closed language " consisting of an expression vector (original claim 4)". The expression vector was defined to be " selected from the group consisting of plasmid and viral and E.coli expression vectors (original claim 5)" or a specific plasmid expression vector was defined to be "selected from the group consisting of pMal-c2, pMal-p2 and pET (original claim 6).

Therefore the examined compositions contained One or TWO components:

(1) all or a portion of SEQ ID NO 1 (claims 1 and 3);

(2) the claimed polynucleotide sequence in a vector (claim 4);

(3) the claimed polynucleotide sequence in a plasmid (claim 5 or 6);

(4) the claimed polynucleotide sequence in a viral vector (claim 5);

(5)the claimed polynucleotide sequence in E.coli (claim 5).

New claims 17-24 present claims drawn to a combination of THREE or more components not previously examined together, specifically:

b. (Instant claim 17, THREE components) comprises:

(1) a fragment polynucleotide sequence (encoded immunogenic polypeptide, from 27-30 nucleotide or more) of nucleotides 13-1015 of SEQ 1;

(2) fused with an E.coli gene encoding maltose binding protein;

(3) in any expression vector, and is Not limited to the plasmids of original claim 6.

c.(Instant claims 18-19, THREE or More Components) comprises:

(1)a fragment polynucleotide sequence nucleotides 13-1015 of SEQ 1;

(2) fused with an E.coli gene encoding maltose binding protein

(3) in any expression vector, and is Not limited to the expression vector plasmids of original claim 6.

(4)(Instant claim 20, depends from claim 19) and further comprises an adjuvant (no previously examined claims recited the term adjuvant);

(5)(Instant claim 21 depends from claim 20) and further comprises a specific adjuvant (no previously examined claims recited the heat labile E.coli enterotoxin adjuvant).

d. (Instant claims 22-24) A bivalent immunogenic composition is directed to a combination of THREE or More components that comprises :

i.a specific fragment polynucleotide sequence 13-1015 of SEQ 1;

ii.an expression system(claim 22)/expression vector maltose binding protein (claim 23); and

iii.a carrier strain of live attenuated bacteria, specifically claimed to be Salmonella or Shigella (claim24) (a species not previously examined, only single species E.coli (original claim 5).

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 17-24 withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

3. Claims 1, 3 and 16 are under consideration.

***Information Disclosure Statement***

4. The information disclosure statement filed September 25, 2000 was considered prior to first action.

***Rejections and Objections Withdrawn***

5. Claim 7 objected to under 37 CFR 1.75© as being in improper form because a multiple dependent claim must depend from another claim in the alternative; claim 7 depends from both claim 4 and claim 5, but not in the alternative, in light of the cancellation of the claim.

6. The rejection of claims 1 and 3 under 35 U.S.C. 101, being directed to non-statutory subject matter in light of the amendment of the claims to recite the phrase --isolated and purified--.

7. Claims 1 and 4-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 rejected under 35 U.S.C. 112, second paragraph, in light of the amendment of claim 1 to be directed to an "immunogenic polypeptide".

Claim 1 rejected under 35 U.S.C. 112, second paragraph, for being directed to a polynucleotide sequence that encodes a polypeptide that is a portion of the flaA gene of Campylobacter, in light of the amendment of claim 1 to recite the phrase --coding region--.

Claim 1 rejected under 35 U.S.C. 112, second paragraph for reciting both "open" and "closed" language through the recitation of "encoding" with respect to a Campylobacter gene, and "consisting of" in light of the claim having been amended to recite only open language.

Claims 4-7 rejected under 35 U.S.C. 112, second paragraph, in light of the cancellation of the claim.

8. Claims 3-5 rejected under 35 U.S.C. 102(e) as being anticipated by Meinersmann et al (US Pat. 5,837,825), in light of the cancellation of claims 4-5 and the amendment of claim 3 to be directed to an isolated and purified polynucleotide the encodes aa 5-338 of SEQ Id No 2.

9. Claim 3 are rejected under 35 U.S.C. 102(e) as being anticipated by Shultz et al (US Pat. 6,270,974; effective filing date of March 13, 1998), in light the amendment of claim 3 to be directed to an isolated and purified polynucleotide the encodes aa 5-338 of SEQ Id No 2.

10. Claim 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Alm et al (May 1993), in light the amendment of claim 3 to be directed to an isolated and purified polynucleotide the encodes aa 5-338 of SEQ Id No 2.

11. Claims 1 rejected under 35 U.S.C. 102(b) as being anticipated by Alm et al (March 1993), in light of the claim having been amended to encode an immunogenic polypeptide. Claim 3 rejected under 35 U.S.C. 102(b) as being anticipated by Alm et al (March 1993), in light the amendment of claim 3 to be directed to an isolated and purified polynucleotide the encodes aa 5-338 of SEQ Id No 2.

12. Claim 3 rejected under 35 U.S.C. 102(b) as being anticipated by Rasmussen et al (1996), in light the amendment of claim 3 to be directed to an isolated and purified polynucleotide the encodes aa 5-338 of SEQ Id No 2.

***Objections and Rejection Maintained***

13. The disclosure objected to because of the following informalities: At page 19, line 21, a blank space is present, in light of the Amendment of the specification not having been entered as it did not correspond to that which was originally presented at this location, specifically, provision for the sentence to be completed on page 20.

14. Claims 1, 16 are rejected under 35 U.S.C. 102(e) as being anticipated by Meinersmann et al (US Pat. 5,837,825), for reasons of record in paper number 10, paragraph 13.

15. Claim 1 rejected under 35 U.S.C. 102(e) as being anticipated by Shultz et al (US Pat. 6,270,974; effective filing date of March 13, 1998), for reasons of record in paper number 10, paragraph 14.

16. Claim 1, 3 rejected under 35 U.S.C. 102(b) as being anticipated by Alm et al (May 1993), for reasons of record in paper number 10, paragraph 15.

17. Claim 1 rejected under 35 U.S.C. 102(b) as being anticipated by Rasmussen et al (1996), for reasons of record in paper number 10, paragraph 17.

***Response to Arguments***

18. The rejection of claims 1, and 16 under 35 U.S.C. 102(e) as being anticipated by Meinersmann et al (US Pat. 5,837,825) is traversed on the grounds that the claimed invention is directed to "a portion of the flaA coding region of Campylobacter, said polynucleotide sequence comprising nucleotides 13-1015 of the DNA sequence of SEQ ID NO 1" and "the vaccine comprises a 1.1 kb region from the middle of flaA gene which is not the same region of the flaA gene as claimed in independent claim 1. The 1.1 kb region aligns with our sequence at base pair 759/999 and extends beyond ours."

19. It is the position of the examiner that the instantly claimed invention of claim 1, is directed to any polynucleotide that encodes an immunogenic polypeptide and need not comprise nucleotides 13-1015 of SEQ ID NO 1. Claim 1 recites open language and does not exclude flaA polynucleotides that are in addition to the recited range of nucleotides, 13-1015 of SEQ ID NO 1; the isolated and purified polynucleotide of Meinersmann et al still anticipates the instantly claimed invention as now amended. Additionally, the instantly claimed sequence of claim 1, also extends

beyond nucleotide 999 of SEQ ID No 1; Applicant's arguments are not commensurate in scope with the instantly claimed invention.

With respect to claim limitations recited in claim 16, Meinersmann et al disclose the isolated polynucleotide that encodes for a portion of Campylobacter FlaA polypeptide inserted into a lambda bacteriophage vector (see col. 9, line 14), transferred to a plasmid (see col. 9, line 19), and transformed in an E.coli expression system (see col. 9, line 47); the polynucleotide is therefore in a suitable expression system. The reference anticipates the instantly claimed polynucleotide that Comprises a portion of a Campylobacter flaA gene, and an expression system into which the polynucleotide has been inserted.

20. The rejection of claim 1 under 35 U.S.C. 102(e) as being anticipated by Shultz et al (US Pat. 6,270,974; effective filing date of March 13, 1998)is traversed on the grounds that the claimed invention is directed to a portion of the flaA coding region of Campylobacter, said polynucleotide sequence comprising nucleotides 13-1015 of the DNA sequence of SEQ ID NO 1 and Shultz et al does not teach a polynucleotides of "13-1015 of SEQ ID NO 1" that is useful in reducing colonization of Campylobacter.

21. It is the position of the examiner that claim 1 is not limited to polynucleotides 13-1015 of SEQ ID NO 1, but is directed to a polynucleotide that encodes an immunogenic polypeptide, and the immunogenic polypeptide is not required to evidence the functional characteristic of being

useful in reducing colonization of Campylobacter; Applicant's arguments are not commensurate in scope with the instantly claimed invention.

It is the position of the examiner that the instantly claimed invention of claim 1, is directed to any polynucleotide that encodes an immunogenic polypeptide and need not comprise nucleotides 13-1015 of SEQ ID NO 1, but must be a polynucleotide sequence taken from the recited region set forth by nucleotides 13-1015 of SEQ ID NO 1 and therefore must encode at least 10 amino acids (an epitope containing region of at least 1000 daltons recognized as foreign for induction of an immune response; an immunogenic polypeptide). Applicant's arguments are not commensurate in scope with the instantly claimed invention.

Shultz et al disclose the claimed invention, a sequence of Shultz et al shares 100% sequence identity over 30 nucleotides of SEQ ID No 1, and encodes the amino acids 97-106 of SEQ ID NO 2. The reference still anticipates the instantly claimed invention.

22. The rejection of claim 1 and 3 under 35 U.S.C. 102(b) as being anticipated by Alm et al (May 1993) is traversed on the grounds that the claimed invention is directed to a portion of the flaA coding region of Campylobacter, said polynucleotide sequence comprising nucleotides 13-1015 of the DNA sequence of SEQ ID NO 1 and Alm et al does not teach a polynucleotides of "13-1015 of SEQ ID NO 1" that is useful in reducing colonization of Campylobacter.

23. It is the position of the examiner that claim 1 is not limited to polynucleotides 13-1015 of SEQ ID NO 1, but is directed to a polynucleotide that encodes an immunogenic polypeptide, and

the immunogenic polypeptide is not required to evidence the functional characteristic of being useful in reducing colonization of Campylobacter; Applicant's arguments are not commensurate in scope with the instantly claimed invention. It is also the position of the examiner that the isolated DNA of Alm et al prior to endonuclease digestion of the coding region for flaA, comprised a DNA that encoded an immunogenic polypeptide comprising amino acid residues 5-338 of SEQ ID NO 2.

It is the position of the examiner that the instantly claimed invention of claim 1, is directed to any polynucleotide that encodes an immunogenic polypeptide and need not comprise nucleotides 13-1015 of SEQ ID NO 1, but must be a polynucleotide sequence taken from the recited region set forth by nucleotides 13-1015 of SEQ ID NO 1 and therefore must encode at least 9-10 amino acids (an epitope containing region of at least 1000 daltons recognized as foreign for induction of an immune response; an immunogenic polypeptide). Applicant's arguments are not commensurate in scope with the instantly claimed invention.

Alm et al disclose the claimed invention directed to a polynucleotide sequence encoding a portion of the flaA gene of Campylobacter, wherein the polynucleotide sequence is a portion of the DNA coding sequence for flaA obtained from C.coli VC167-T2, the same strains used by Applicant to obtain the claimed polynucleotide sequence, as well as discloses an isolated and purified DNA sequence that comprising a DNA that encodes amino acid residues 5-338 of SEQ ID No 2. Logan et al (1989, reference cited in Applicant's specification) provides evidence that

the flaA coding sequence of C.coli VC167-T2 is identical to that recited in the claims (see Figure 1, page 3052, lines A, B and C). The rejection is maintained for reasons of record.

24. The rejection of claim 1 under 35 U.S.C. 102(b) as being anticipated by Rasmussen et al (1996) is traversed on the grounds that the invention of claim 1, as amended is not anticipated by the primers of Rasmussen et al.

25. It is the position of the examiner, that the disclosure of Rasmussen et al discloses more than just primers, specifically amplified flaA DNA that encodes FlaA immunogenic polypeptides of Campylobacter Coli (see Figure 1, and 2). The amplified products from the PCR primer is what anticipates the instantly claimed invention as now amended. The PCR primers were obtained from the conserved region of the flagellin gene sequences of flaA (see page 363, col. 2, paragraph 2, top of paragraph). The conserved sequences were determined and obtained from C.coli VC167. The DNA sequence was publicly available in EMBL M35141, and was also disclosed in Logan et al (1989, reference cited in Applicant's specification and also incorporated by reference by Rasmussen et al). The reference inherently anticipates the instantly claimed invention.

***New Claim Limitations/New Claims/New Grounds of Rejection***

***Claim Rejections - 35 U.S.C. § 112***

26. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it

pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

27. Claims 1, 3 and 16 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 has been amended to recite the phrase "comprising nucleotides 13-1015 of the DNA sequence of SEQ ID NO: 1." SEQ ID NO 1 only has 999 nucleotides in it and therefore does not represent a sequence having 1015 nucleotides, what the additional nucleotides are were not disclosed as SEQ ID NO 1. Claim 1 recites New Matter.

Claim 16 depends from claim 1 and therefore recites the claim limitation of amended claim 1, specifically the phrase "comprising nucleotides 13-1015 of the DNA sequence of SEQ ID NO: 1." SEQ ID NO 1 only has 999 nucleotides in it and therefore does not represent a sequence having 1015 nucleotides. Claim 16 recites New Matter.

Claim 3 has been amended to recite the phrase "DNA sequence encoding an immunogenic polypeptide comprising amino acids 5-338 of SEQ ID NO: 2." SEQ ID NO 2 only has 330 amino acid that a DNA sequence can encode and therefore SEQ ID NO 2 does not represent an amino acid sequence having 338 amino acids, what the additional nucleotides are that encode the additional 8 amino acids were not disclosed in SEQ ID NO 2. Claim 3 recites New Matter.

28. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

29. Claims 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 16 recites the phrase "is expressed in a suitable expression system". The claim should recite the phrase --further comprises--. The claimed polynucleotide set forth in claim 1 is "isolated and purified" and is not associated with any expression system, suitable or not. Claim 1 does not indicate in any way that the polynucleotide is able to be expressed based upon its nucleotide sequence alone (SEQ ID NO 1, nucleotides 13-1015). What is an unsuitable expression system as compared to a suitable expression system; no point of reference is defined in the claim for unsuitability or suitability? Original claim 5 defined specific expression systems to consist of a plasmid and viral and E.coli expression vectors; these were suitable. Clarification of the polynucleotide sequence (molecule) claimed is requested.

### *Claim Rejections - 35 U.S.C. § 102*

30. Claims 1, 3 and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Logan et al (1989, reference cited in Applicant's specification).

Logan et al disclose the claimed invention directed to an isolated and purified DNA molecule (see fig.2, page 3034) that encodes an immunogenic polypeptide of Campylobacter flaA (see pGK201, page 3033), the DNA molecule

comprising the sequence of nucleotides of 13-1015 of SEQ ID NO 1, as well as encodes amino acids 5-338 of SEQ ID NO 2. The reference anticipates the instantly claimed invention.

***Conclusion***

31. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

32. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ginny Portner whose telephone number is (703)308-7543. The examiner can normally be reached on Monday through Friday from 7:30 AM to 5:00 PM except for the first Friday of each two week period.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynette Smith, can be reached on (703) 308-3909. The fax phone number for this group is (703) 308-4242.

The Group and/or Art Unit location of your application in the PTO will be Group Art Unit 1645. To aid in correlating any papers for this application, all further correspondence regarding this application should be directed to this Art Unit.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Vgp March 31, 2003

LYNETTE R. F. SMITH
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